

ABSTRACT

Provided is an improved system and method for implementing a constellation of satellites in inclined elliptical orbits. The satellites are operated during the portion of their orbits near apogee to emulate the characteristics of geostationary satellites. The orbits are configured to form a number of closely spaced repeating ground tracks around the earth. In each ground track the satellites operate only in arcs well above or below the equator to provide a large number of non-geostationary orbital slots that substantially increase global satellite capacity without interfering with the existing geostationary satellite ring. Minimum spacing is maintained between satellites in each active arc and between satellites in the active arcs of adjacent ground tracks to ensure that the satellites in the non-geostationary constellation do not interfere with each other.